

# MANAGEMENT INFORMATION SERVICE

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## SHORT-TERM INVESTMENT OF IDLE FUNDS

*What are the steps to be taken in determining the cash and securities available for the short-term investment of idle funds? What treasury management procedures are needed for a continuing investment program?*

A municipality is probably the biggest single organized enterprise in any local area with the possible exception of a major manufacturing plant. City bank accounts are normally among the largest in town, and municipal transactions comprise an important part of the total volume of bank business.

Every city manager knows that a city is a complicated enterprise to manage due to the wide diversity of functions. In a sense, he is supervising an organization that might be compared to the most complicated and diversified industrial concern or to a holding company operating many different types of businesses.

Therefore city managers would do well to consider their city governments as businesses. As with any private corporation, one of the most productive fields in financial management is the proper custody, control, and utilization of available funds. The level of bank balances, cash requirements, and potential investment of idle funds are problems that require constant study in order to achieve businesslike results. It is imperative that city managers and finance officers recognize the necessity for analysis and study of all the factors. This becomes increasingly important each year as the volume of transactions rises and as local government costs increase.

As salaries, maintenance costs, improvements, and other expenditures rise, most municipalities are constantly searching for added sources of revenue. This search often overlooks one of the partial solutions — proper utilization of normal items of income such as taxes, license fees, permits, interest earnings, and other continuing sources of funds.

Although many aspects of this report will pertain only to the larger cities, the municipalities whose funds are limited should not disregard the principal suggestions which are incorporated in the following pages. The sections on forecasting and controlling cash position, on bank relationships, and on time deposits, and treasury bills are particularly applicable to the smaller jurisdictions. The use of only these fundamental elements could prove very beneficial and profitable, and the alert municipal finance officer should be prepared to take advantage of all such opportunities. Even in the smallest municipalities, there may occasionally be substantial funds which are temporarily available for investment as a result of the sale of bonds.

### Determining Amounts To Be Invested

Prior to considering types of investments, it is necessary to examine the methods of projecting cash flow and the value of such a projection.

1. Idle funds in the treasury can be invested or placed in interest bearing time deposits and thus earn revenue for the governmental unit. By idle funds is meant any surplus cash available in the treasury not necessary to be maintained in the active noninterest bank accounts for the handling of transactions. Such funds can be most effectively invested if the amounts are known in advance. It is also obvious that the length of time for which the investment is made is dependent on forecasting how long the funds will be idle.

Many finance officers have used long-term investments for various types of pension and trust funds. Many have also used relatively short-term investments, such as 90-day interest bearing bank accounts and U. S. Treasury Bills, for surpluses available for a relatively few months. Very few local governments, however, have utilized temporary surpluses available for only a few weeks, or a month, for investment purposes. Many have also been too slow in making investments and have thus passed up substantial additional earnings.

2. A thoroughly organized cash management program will encourage effective budget control, including the programming of controllable expenditures such as outlays and improvements.

3. Advance knowledge of future treasury condition makes possible reduction of the problems of "lean period" financing faced by many. It should minimize the need for tax anticipation borrowing and give advance notice of such needs or of requirements for interfund temporary loans. These "lean periods" are those times of the year when incoming revenues are not sufficient to cover normal expenditures of the same period.

4. The program will provide a guide for determining the amounts of cash working capital needed for various funds and for any temporary cash loan fund which is maintained. It will help in budget planning of the amounts necessary for closing surplus at the end of the fiscal year to start the financing of the subsequent year.

5. A thorough-going cash management program can be the basis for maintaining and improving relationships with banks, vendors, and employees through prompt payment of invoices and payrolls and stabilization, as far as possible, of bank balances.

#### Procedural Steps in Forecasting Cash Position

In reviewing the specific mechanics for cash management, they have been grouped under seven steps. Actually, many of these steps will be performed concurrently. However, each of the steps represents a major phase of the process, and they are as follows:

Step 1. Determine the pattern of cash flow in and out of the treasury and analyze bank balances for a long enough period of time to indicate any normal cyclical patterns and identify the normal peaks and low points in balances. This analysis can probably best be performed by the treasurer's office. Many treasurers, as a matter of routine, maintain a monthly tabulation of cash flow experience. If this has not already been done, these figures should be reviewed for at least the last five-year period, with totals tabulated for deposits, disbursements, and balances for each month and for each fund handled in the treasury. A combined tabulation should also be made of all funds so that the entire treasury picture with reference to cash flow and balance is clear. An analysis of monthly receipts and disbursements by fund for one year is illustrated in Exhibit A. (This and other exhibits are shown at the end of this report.)

Step 2. Break down the totals of receipts and disbursements into their components. This step can probably best be performed by the accounting office which has the full detail on revenues and expenditures. Breakdown should be made for each major fund and may not be necessary for the smaller trust funds or funds that do not show any marked seasonal fluctuations in receipts and disbursements. Using ordinary stock accountant's working papers, a breakdown by months should be made for a three to five-year period and should include the receipts by major source groups and the disbursements by major object class, such as payroll, retirement contribution, fixed charges, and capital outlay.

In segregating the expenditures, it has been the experience that five to 12 major classes (depending on the fund) are sufficient, and it is not necessary to tabulate by individual departments. It is better to select object and character classifications where data can be obtained from total fund disbursements, such as payroll. An example of one year's monthly receipts and disbursements analysis for a single fund is shown in Exhibit B.

Step 3. Chart the data obtained in Steps 1 and 2 in a manner that will make clear any cyclical trends in receipts and disbursements. It will probably be desirable to put five years of data on each chart, using a different color or different type of line for each year. In this manner, the lines or

bars for each month can be compared directly on the chart with the lines or bars for other months of the entire period studied. The charts and data which are prepared should be reviewed with the top management officials of the unit of government. This will be an excellent means of showing the importance of proper cash control and potential earnings that could be secured through careful planning of investment of temporary surpluses.

Step 4. Review monthly reports and ledgers of each detailed revenue account classification and prepare a "factor analysis sheet" for each revenue that has predictable seasonal trends. The "factor analysis sheet" commonly used is simply 14-column accounting paper with 48 horizontal line rulings (see Exhibit C). One sheet is set up for each detailed revenue account which examination has shown to have a definite seasonal trend in receipts. Each of the 14 vertical columns is headed by an indication of the fiscal year (a). The sheets are set up originally with the first three columns containing data for three prior years, thus providing capacity for entry of 11 future years of experience. Each fiscal year column in turn is divided into two sections. The first—left-hand part of column (b)—is used to enter the percentage revenue realized each month of the annual total. The right-hand portion of column (c) is used for entry of cumulative percentage realization. There is no entry for the total dollar amounts received each month on the historical data. The reason for this is that the objective is percentage realization rather than dollar amounts. By going through the detail revenue reports, an employee can use a calculating machine to compute the percentages directly from the reports and enter them on the analysis sheets, thus saving unnecessary transcription work. The entries which have been described are made on the 12 horizontally ruled lines in the top portion of the form, with one line used for each month. (d) Below this section are entered the total dollar receipts for the revenue source for the year. (e) Below that is an area of 12 more horizontal rulings, in which are computed and entered for each year the average of each month's percentage figure for the three prior years. (f) In this manner a series of moving averages is maintained.

By making analysis of individual revenue accounts as to percentage of total annual revenue that has been realized each month, data are obtained that can be applied in estimating probable monthly receipts in future years. Unless some change in law is made or a major change occurs in economic conditions, the cyclical patterns of receipts for individual revenue source will generally be consistent and thus predictable. Once these factor tables are established, it is also possible to revise budget revenue estimates quickly during the course of the year by merely dividing the receipts to date by the factor of expected percentage realization to date.

Step 5. Prepare projections for each fund, and for all funds combined, of monthly receipts, disbursements, and estimated balances. The basic guide for the fund and total projections will be the past experience analysis and revenue factor sheets. The projection of receipts and disbursements should be done in much the same detail and form as the historical analysis, with receipts by sources and expenditures by major object classification. The percentage factors by revenue account will be guides to many of the receipt projections. However, it must be remembered that adjustments must be made for changes that occur in revenue structure, methods of administration, and other conditions which were nonexistent at the time the historical data were prepared.

Similarly expenditure projections should always be carefully considered. Some classes of disbursements are readily assessable such as payroll, supplies, services, and other relatively fixed costs. Monthly cash requirements for items like bond interest and redemption, of course, can be easily ascertained. However, many categories are not so easily determined, such as expenditures for land, buildings, and equipment. Projections on the major variable expenditure items can best be made through discussion and analysis prepared by the departments directly responsible for their administration.

Projections of the type described can be made for different periods of time. It is recommended that an annual projection be prepared prior to the beginning of the fiscal year. At this time the work sheets should provide at least three horizontal lines for each item (see Exhibit D). The first line will be used to record the actual experience and will be entered at the close of the books each month. The second line will be used to enter the annual estimated projection figures; the third and subsequent blank lines will be reserved for entering revised projections made at least quarterly and, if necessary, monthly.

For the purpose of revising and keeping up to date the projections of disbursement requirements, particular attention should be given to any major construction project payment requirements. It is possible to develop a simple form to be sent to the contractor when a construction bid is awarded (see Exhibit E). On this form the contractor can indicate what he believes will be his progress earnings per month. After review of this form by the city engineer or the utility department administering the contract, it will be used for revising the projection figures. Blank columns can be provided on the form for entry of revised estimates made by the supervising engineer as the job progresses.

Step 6. Establish a program of regular review of the annual and quarterly projections of monthly receipts and disbursements, and use the data for controlling cash flow where possible. In this connection, referral is made to a responsibility of the budget administration authority to schedule major construction projects, changes in activities, and operations of departments so as to minimize the cash problem during "lean periods." This review should also indicate the need and provide the basis for advance planning of temporary loans or of investments. Such investment plans are more likely to be executed if policies are set well in advance, particularly as to the proper level for maintenance of active bank balances.

Step 7. Establish the policies and procedural mechanics for cash analysis and control on a daily, weekly, or other short-term period within each month. It is in this area of short-term cash analysis and control that most finance officers can improve their practices. With proper methods, it is entirely possible for a city to predict disbursement volumes several days or weeks in advance. For many types of disbursements, a little analysis will show what cash flows are to be anticipated. This is true because such things as payrolls are paid out on regular recurring schedules, as are many types of vendor's payments.

The disbursements that are not cyclical in nature can be predicted (usually some days in advance) by establishing notice procedures on major items so that the person responsible for watching cash flow is notified as soon as deliveries are received or as progress on a contract job is known. The section of the accountant's office that handles auditing of payments and receives delivery certifications from departments should be instructed to flag all major items and provide advance notification on major disbursements. Similarly offices such as the city engineer, supervising major contracts, can arrange to advise the accounting office or treasury as soon as construction inspectors have determined the percentage of progress on which payment will be made. This information can be obtained at least 10 days to two weeks prior to the handling of the warrant or check.

Determination of Amount of Cash To Be Maintained in Active Bank Balances. Once the finance officer has established a program of projection of cash flow and has tested its reliability, it will be possible to predict with reasonable accuracy the probable cash balances of the various funds and the probable cash totals to be expected in the treasury. If it has been possible to develop day-to-day procedures for cash control and review, they will reveal a great deal about the probable daily balances long enough ahead to plan utilization of funds for very short-term investment.

Before the release of these funds for investment, however, it is necessary that policies be established as to the amount of balances which should be retained in active bank accounts to handle transaction volumes. Obviously, the proper amount to be maintained in active bank balances is not quite as simple to ascertain as might be believed. It is not enough to think that the only requirement is to have a balance great enough to cover the checks or warrants written. Although this consideration is ample for most individual depositors, it oversimplifies the problem of the governmental treasurer. It is just as true, however, that funds not needed to maintain proper active bank balances certainly should never be left in a noninterest bearing account to allow the bank to obtain earnings which might properly be obtained for the governmental treasury.

For instance, blanket use of a fixed ratio between active and inactive accounts is not always the proper approach, particularly for the average-sized and larger cities. These ratios vary from one-to-one up to three or four-to-one, depending on locality, competition, size of account, and many other factors. Simply stated, a one-for-one ratio means that the city must keep on deposit one dollar in an active (noninterest bearing) account for each dollar maintained in an inactive (interest bearing) account.

Obviously, the "effective rate of return" to the city on its total amount of money on deposit is substantially reduced. As an example of the one-to-one ratio, if it is assumed that a bank is paying 1 per cent on an inactive account and nothing on an equal amount of active deposit, then the "effective rate of return" to the city on all its bank accounts is only one-half of 1 per cent. As the ratio is increased to allow a greater amount of inactive deposits per each dollar of active deposit, the over-all rate of return on total deposited funds is increased proportionately.

It would appear that the proper approach to this problem is to discuss with bank authorities the mutual interests which prevail. They should be asked to present their policy and views with regard to compensating balances for municipal deposits. The treasurer, however, has a responsibility for satisfying himself in a factual way as to validity of the policy suggestions made by the bank.

Basically, the treasurer should feel no responsibility for maintaining active deposits other than amounts sufficient to compensate the banks for the work they perform which will provide reasonable commercial profit margin. Most banks calculate that they will earn from an active account some 1.5 to 2.0 per cent of the average balance, less what is termed as the "float." The "float" is, generally speaking, the checks which the depositor has deposited to the credit of his account but which have not cleared to bank of origin. From this earning balance, the bank must subtract the costs of handling the customer's business. There are well accepted methods for calculating the costs of handling a customer's account for the normal, commercial-type depositor.

In the case of a municipality, there must be added to the normal account costs the value of special services performed by the bank. For example, the bank is certainly entitled to reasonable compensation if it takes bids on investments, maintains custody for securities, makes special pickups of money, delivers bonds and securities, treats the city as a preferred depositor by pledging securities to cover its deposits and, in some cases, if warrants are still used for payment rather than checks, carries a substantial additional "float" on the city's account beyond that normal for a commercial account.

Banks also often render valuable services in connection with the administration of city debt, including acting as trustee for bond issues; fiscal paying agent for bonds and coupons; agent to receive, examine, and deliver issues of municipal bonds; handling of exchange of maturing and called bonds for the new issues; dissemination of municipal financial data in connection with bond issues; and furnishing one of the major markets for purchase of municipal bond issues. Many valuable services also are rendered in connection with the investment of temporary cash surpluses of the municipality.

It is suggested that, after the special factors are considered, the balance of the cost of handling the city account should be figured on the same basis on which commerical account costs are valued. It would be well for finance officers to familiarize themselves with the methods used in calculating the cost of handling an account. They are, therefore, reviewed as follows:

1. The bank first prepares an analysis sheet for the account, usually designed with columns as illustrated in Exhibit F. Under each column are horizontally ruled lines for each day in the month for tabulating each day's transactions.

2. When the above data have been compiled, earning factors and cost factors are computed approximately as set forth below. Charges in the sample schedule are only generalized examples and will vary, depending on a particular bank's system of analysis:

#### Earning Value of Account

1. Average account balance \_\_\_\_\_ (Total of Column (1) divided by number of days or use of specific dates for averaging as in sample Exhibit F)
2. Less average dollar amount of checks deposited \_\_\_\_\_ (Total of Column (2) divided by number of days)
3. Average collected balance \$ \_\_\_\_\_ (Item (1) minus (2))
4. Earning value of account \_\_\_\_\_ (Item 3 x .00125 - if based on 1-1/2% per year)

5. Cost of Handling Account

- a. Interest on uncollected funds \$ \_\_\_\_\_ at 6% per year  
(Charge if Item 2 exceeds Item 3 only)
- b. Number of deposits @ \$.05 each \_\_\_\_\_
- c. Number of checks deposited or cashed @ \$.15 each \_\_\_\_\_
- d. Cash deposited @ \$.15 per \$1,000 \_\_\_\_\_
- e. Checks paid from account @ \$.035 \_\_\_\_\_
- f. Returned items @ \$.15 \_\_\_\_\_
- g. General account maintenance charge \_\_\_\_\_
- h. TOTAL COST \$  
Net Account Profit or (Loss)  
\$ \_\_\_\_\_ (4 minus 5h)

Investment Considerations and Types of Investments

Legal Requirements. Any plans for investment must first take into consideration the legal regulations governing the municipality desiring to enter the field. Normally, definite restrictions are contained in the government codes of the various states. Within the general limitations of the codes, the finance officer must also review the charter and ordinances of his own city and the manner in which they may be interpreted. Consultation with the city attorney is recommended as a safeguard prior to establishing an investment program.

Available Facilities. In addition to investigation of the legal facets, care should be exercised in examining the sufficiency of available facilities in the light of the extent to which investments will be made. For those cities whose limited resources and small amount of idle cash prohibit large-scale investing, physical and personnel requirements are minimum. Normally the city treasurer or city manager can handle the infrequent transactions by requesting the local bank to provide investment information and counsel, and thereafter offset the purchase of selected securities. Such procedures require little time or specialized knowledge on the part of city officials since they usually work closely with the bank officers and are easily able to translate city needs into understandable terms upon which the bank may advise and act.

Role of Commercial Banks. The role which the commercial banks play in the investment program cannot be overemphasized. It is important for cities to cooperate with banks on the problems of bank balances; the benefits of such cooperation are returned in the form of investment advice and counsel. Most of the larger banking institutions have adequate personnel and facilities, and they are always willing to provide these services free of charge to municipalities. They have, either through their own branches or through correspondent bank relationships, extensive sources of information. In many cases, they maintain direct telephone and wire contact with all the large investment houses throughout the United States. Information thus obtained is sifted and analyzed by a specially trained staff, and decisions based thereon are normally much more meaningful and factual than those made from random information.

When the time arrives for the municipality to purchase one or more issues of securities, the bank again assumes a large role. The finance officer has only to reach for his telephone and tell the bank the amount of purchase and the issue desired. Thereafter the bank places the order on the securities market, either purchases outright or accepts bids subject to approval of the city, closes the transaction, arranges for delivery date and payment through the city account, and may even maintain custody of the securities in the bank vaults. When custody is maintained, the city receives a safekeeping receipt, and the problem of transporting valuable documents is eliminated.

At the time securities are sold, the above advantages are repeated in reverse. The bank obtains the sale prices, completes the transaction, delivers the securities and accepts payment, and deposits the proceeds to the credit of the city. If the securities have been stored in the bank vaults,

it is possible that the city might complete the entire purchase and sale cycle without ever having physical possession of the documents themselves.

The savings to a city by these processes are many. First, the city receives the benefits of better buying. The bank places many orders in the market and often knows exactly where to call to obtain the best price on a particular issue. They have contacts entirely foreign to municipalities who enter the market on an occasional basis. When securities are bought, they are delivered to the bank via its regular armored car service and are covered under the bank's blanket insurance policy. Both of these cost factors are savings to the city.

When custody is maintained by the bank, actual verification of denomination, date, serial number, and other facts on each piece of paper is not required of the treasurer or other city officials. In addition, the securities are in the bank vault — fully insured and protected. With all these advantages, the city constantly receives current advice as to portfolio shifts, new issues coming to the market, and numerous other investment factors. For all of it, the bank asks only that sufficient "compensating balances" be maintained.

**Basic Investment Considerations.** Once the decision has been made by the city to enter the investment field, using the best available facilities, attention must be given to a few basic considerations. The program should have a definite objective, if not several of them. The scope of the investment market is so broad that it is hardly possible for a city employee to be aware of all the factors which should be considered concerning the type of securities to be purchased, maturities to be selected, and other factors. It should first be established just how much liquidity of funds is needed to obtain the proper results. An added safety consideration should then be made, and some amounts of primary and secondary reserves should be calculated. On the two — liquidity and reserves — the city official must base his approach. Thus far the broad aspects of the problem have been reviewed. It is now necessary to analyze some of the specifics.

**Primary Investment Fundamentals.** Once the over-all determinations have been made, it is essential to review the three primary fundamentals underlying a municipal investment program.

1. **Safety of Principal.** Regardless of any other considerations, the protection of the taxpayer's money should be the main objective. No reasoning to the contrary can justify any speculation with the principal amount of the funds to be invested.

2. **Spacing of Maturities.** This can well be stated as follows: "When the money is needed, it must be available." Often, it is easy to see that securities having a maturity one or two years longer will pay considerably more interest. However, a high rate of interest is worthless if the funds are not ready when needed or if a loss must be taken in order to sell earlier than expected. Any funds that bear a possibility of being needed prior to maturity should be bought on such a price basis that the principal will be protected and the sale can be consummated at the proper time.

3. **Maximum Earnings.** If the first two factors have received proper consideration, the selection of those issues providing maximum earnings may now be made. Although this feature of the program usually receives the most attention from fellow administrators, as well as taxpayers, it is the least important of the three. Suffice to say that it is sometimes more in the long-run interest of the city if the issue that provides the largest return on the quotation sheet is passed by in favor of another issue yielding slightly less return. This situation bears upon considerations of conversion rights, portfolio switches, "thin" markets, and other technical elements which may be discussed with an investment counselor.

**Types of Investments.** Having concluded the basic analyses of an investment program, the city official is ready to investigate the various types of investment opportunities available to him. Here again, he should become familiar with the procedures involved in purchasing and selling each type, method of handling the custody and collection of interest, and the reasoning behind the use of one or more types. Following, briefly, are some of the possibilities.

1. **Time Deposits.** These are commonly known as inactive interest-bearing accounts similar to a savings account and are available to any municipality. First of all, it should be realized that city deposits in a bank are not unregulated since they are governed by Regulation "Q" of the Federal Reserve System and also by sections of the Government Code.

As of this writing, municipal deposits in any one bank are limited to the total of capital and surplus of that bank, exclusive of reserves. To the extent that they may be used, however, time deposits are a good source of investment. The principal is as safe as possible, the money is available upon short notice and the earnings are reasonably good.

A city desiring to maintain small amounts of interest-bearing money where it might be utilized in a short time, or upon short notice, would do well to place as much as possible in either 30-day or 90-day notice time deposits. Monies which are available for longer periods of time, such as one year or more, may be deposited in one-year-notice time deposits at a slightly higher interest rate. Inactive interest-bearing bank accounts are particularly attractive for smaller cities when temporarily available surpluses are not large enough to justify going through procedures necessary for purchase of U. S. Treasury Bills or other types of investments discussed in this report.

Interest rates on time deposits vary depending on the particular bank, the notice required, the amount of added business involved, and other factors. For many years, most banks have held that municipalities should be governed by the "one-to-one" ratio on their time deposits, as explained earlier in this report.

Although many banks still champion this ratio, the more progressive institutions are broadening their views. Some banks have now shifted to a "two-to-one" arrangement (one dollar of commercial deposit for every two dollars of time), or even a "three-to-one" ratio.

But the most forward-looking banks will surely have to come to the conclusion reached by the writers: that is, the commercial or active account of a city should be maintained only at a sufficient balance level to compensate the bank for the services required (checks written, deposits taken in, returned items processed, statements rendered, special services, and advice given).

Full recognition should be allowed in this balance to the banks' problems of "float," unemployable funds, community service, and other factors. But once this proper level of commercial balance has been determined to the satisfaction of both parties, all other funds should be placed in interest-bearing accounts without regard to ratios or any other outside factors.

The cities are just as entitled to earn money on their funds as are business corporations or individuals; indeed, they would be doing their taxpayer constituents a disservice if they failed in this regard. This category of time deposits represents the largest investment medium for municipal funds. For many of the smaller cities, these deposits normally may constitute about the *only* usable type of investment.

2. Government Securities. One of the greatest sources of earnings for all sizes and types of municipalities is in the field of "governments." These securities of the United States Treasury are backed by the full faith and resources of the United States Government and are approved channels of investment under all circumstances. They reflect the current level of interest rates because they are not subject to any of the hazards of credit risk or quality deterioration. They are issued in any one of several forms, among which are bonds, notes, certificates of indebtedness, 90-day bills, tax-anticipation notes, and other types.

Maturities vary from the short-term bills to long-term bonds of 20 and 30 years or more. Some issues are callable by the government prior to maturity; others are not. Some are offered on the open market for cash, while others are available by exchange of an issue already held. Some are purchased at face or par value; others are bought at a discount. Some securities have coupons attached; others do not. The varieties and types are numerous and constitute another reason why proper advice from a qualified bank or broker is necessary before entering the market.

Treasury Bills. Perhaps the greatest use is made of the U. S. Treasury Bills, which are limited in maturity to a period of one year or less. They are issued on a discount basis, and the return on the investment is the appreciation between the price at which they are purchased and their maturity value of 100.

With the exception of tax anticipation bills issued from time to time to finance temporary Treasury needs, bills are currently issued with a maturity of 90 to 92 days. When a holiday does not interfere, the maturity is 91 days. At present,

there are 13 weekly series, most of them in the amount of \$1.5 billion each. They are offered at a competitive auction each Monday for payment every Thursday. Bills are held primarily by commercial banks, the Federal Reserve System, and nonfinancial corporations, although at times long-term investors such as insurance companies and savings banks use them for the employment of temporary funds.

Bills provide a highly liquid investment for short-term funds with relatively little market risk. They are particularly appealing to a small city with limited investable funds and a short-range spending program. They do not have to be held long to make a profit (see Exhibit G), and they satisfy all the basic ingredients of a proper investment program.

Because of the necessary functions which must be performed in order to subscribe for, hold, and sell Treasury Bills, it is not normally a satisfactory source of investment unless a city can make a purchase at any one time of at least a minimum amount of approximately \$50,000. For exact calculations as to the minimum purchase in each specific situation, any bank or investment counselor will be glad to assist.

Certificates of Indebtedness. Treasury certificates of indebtedness are also issued with a maturity not over one year. Those outstanding at the present time, with the exception of one tax anticipation series, have been issued for that period. They carry one coupon payable at maturity. All regular series of certificates of indebtedness now outstanding were issued in refundings of maturing Treasury securities.

In order to assure a successful refunding, they have been priced when offered to yield a return which would result in some premium in the open market. This resulted in maturing issues having a market or "right" value above par because of this exchange privilege. For this reason, certificates of indebtedness frequently sell in the market at a yield which appears on the surface less attractive, when maturity is considered, than do the Treasury bills which have no right value. The same fact influences the market prices of Treasury notes and bonds as they near maturity. While not quite as liquid as Treasury bills, experience has shown that certificates of indebtedness can, under almost any circumstances, be quickly and easily liquidated when the holder requires cash.

Treasury Notes. For those cities whose available resources allow them to plan a little further in advance, the longer government securities provide more possibilities for increased earnings. Treasury notes are issued with a maturity of longer than one year, but not more than five years. They are of primary interest when cash requirements fit the particular maturities. A more common purchase, however, is that of U. S. Treasury Bonds.

Treasury Bonds. Treasury bonds are not restricted by law as to date of maturity. It has, nevertheless, been the policy to issue them only with maturities of five years or longer. Intermediate maturities, that is, those originally offered to mature in from five to 10 years, are purchased largely by commercial banks. Those with maturities over 10 years are held principally by such financial institutions as savings banks, savings and loan associations, insurance companies, private pension funds, public pension funds, and other public funds of various types.

Since it is axiomatic that "the longer the maturity, the greater the risk," it is not always possible to manipulate the notes and bonds to make a spot profit whenever desired. However, they are just as safe as any other types when held to maturity. The amount of funds available for investment and the length of the potential investment period determine the extent to which these securities may be purchased. They are ideal for pension funds, bond redemption and interest funds, or any other funds where the principal is not needed until some future date.

Series "J" Savings Bonds. Some cities have used to advantage the new Series "J"

Savings Bonds — one of the many nonmarketable issues of the government. These issues are redeemable at the option of the holder, either on demand or after a fixed period of notice, but they cannot be transferred from one holder to another. For those municipalities who have nonfluctuating funds available for long-term investment, the interest return from the Series "J" Savings Bonds is excellent.

3. Municipal Securities. Bonds issued by states and their political subdivisions, i.e., cities, counties, school districts, special districts of all kinds, and public authorities, are known as "municipals." These bonds have one thing in common, the interest they bear is exempt from federal income taxes. As a result these bonds are sought by individual and corporate investors whose incomes are taxed at high rates. Yields obtainable on the better grade municipal bonds are, therefore, normally lower than on U. S. Governments which are fully taxable. (A small and shrinking portion of the federal debt is partially tax-exempt.) As the earnings of city funds are not subject to federal taxes, there is no incentive for the city finance officer to pay a premium for tax-exempt income.

There are times, however, when due to the heavy supply of municipal bonds or other market factors, *sound* municipals are obtainable at yields comparable to, or better than, those for similar maturities of governments. At such times, the city finance officer may be justified in purchasing municipal bonds.

There are two principal types of municipals: (1) general obligation bonds, and (2) revenue bonds. The first are secured by the general taxing power of the issuing entity. (In some states this taxing power has constitutional or statutory limits.) Revenue bonds are secured by the pledge of the earnings of a publicly owned utility or enterprise, such as a water system, a toll road or toll bridge, or parking facilities; or sometimes, particularly in the case of a state, certain specific taxes only may be the sole source of debt support, such as a gasoline tax or a cigarette tax.

Revenue bonds carry, in most cases, higher yields than general obligation bonds of the same obligor. Revenue bonds must be judged on a basis comparable to the selection of bonds of a private corporation and, consequently, must be chosen with great care. Very sound issues are available, however, and opportunities for profitable investment of public funds may be found. Expert advice is a necessity when selecting municipal bond issues and is especially so in the revenue bond field.

There are other types of securities available for investment which have been utilized to advantage by some cities and other governmental jurisdictions, particularly for long-term investment accounts such as pension funds. However, in California the investment of public funds is covered generally by Section 53601 of the Government Code, which reads as follows:

The legislative body of a local agency having money in a sinking fund of, or surplus money in, its treasury not required for the immediate necessities of the local agency may invest such portion of the money as it deems wise or expedient in:

- (a) Bonds issued by it including bonds payable solely out of the revenues from a revenue-producing property owned, controlled or operated by it or by a department, board, agency or authority thereof.
- (b) United States Treasury notes, bonds, bills or certificates of indebtedness, or those for which the faith and credit of the United States are pledged for the payment of principal and interest.
- (c) Registered state warrants or treasury notes or bonds of this State including bonds payable solely out of the revenues from a revenue-producing property owned, controlled, or operated by the State or by a department, board, agency or authority thereof.
- (d) Bonds, notes, warrants or other evidences of indebtedness of any local agency within this State, including bonds payable solely out of the revenues from a revenue-producing property owned, controlled or operated by the local agency, or by a department, board, agency or authority thereof.

These provisions govern all general law cities in California as well as those charter cities whose individual charters specifically incorporate them. Charter cities in California can probably invest in obligations of public agencies other than those enumerated in Section 53601, but decisional authority for this type of investment is not yet available. In some other states higher yields are obtainable on obligations of the Federal Home Loan Bank and the Federal Land Bank, on Canadian bonds, on industrial, public utility and railroad bonds, and even on high-grade preferred and common stocks.

Such investments involve greater risk, and a correspondingly greater degree of investment analysis is necessary for satisfactory results. Common stocks, especially, are relatively hazardous. In other states which have various types of regulations covering this subject, legal advice would be necessary before adopting such an investment program. Where common stocks may be employed, consideration might be given to long established mutual funds or investment trusts with low operating expenses in order to minimize the risks involved.

*Acknowledgments.* This report has been prepared by William C. Reeves, accountant, department of finance, Long Beach, California. The report was reviewed by Samuel M. Roberts, director of finance, Long Beach. Much of the report has been drawn from a 1956 publication of the League of California Cities entitled *Treasury Cash Management and the Investment of Idle Funds*. Grateful acknowledgment is made to the League of California Cities for permission to draw extensively from this report.

**ANALYSIS OF MONTHLY RECEIPTS AND DISBURSEMENTS BY FUND—FISCAL YEAR 1956-57**

[7/1/56 Opening Balance: 327.096)

**ANALYSIS OF MONTHLY RECEIPTS AND DISBURSEMENTS—GENERAL FUND—1955-57**

Receipts by Source		July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
General Property Tax.....		6,659	5,659	60	176	6,755	57,097	15,000	108,536	760	56,212	10,000	254,596	
Sales and Use Tax .....				6,930	8,965	18,083	10,115	20,278	11,218	19,907	10,575	12,697	8,944	140,030
Franchises.....				2,454	2,367	2,405	3,251	2,713	20,457	6,955	13,055	13,055	20,010	
Licenses and Permits.....				265	284	341	437	354	208	11,750	6,134	2,885	3,406	64,726
Fines and Forfeitures.....										265	324	619	924	4,732
Revenue from Use of Money and Property.....		675	675	27,500	675	3,218	3,962	2,475	986	2,750	675	675	1,848	14,622
Lien Tax.....		2,585	19,057	101	4,291	5,248	9,976	4,441	2,000	1,895	8,373	4,722	39,800	156,190
Charges and Fees for Current Service.....		3,863							5,925	5,105	1,605	11,164	6,297	105,465
Other Misc. Revenue.....													7,470	71,655
TOTAL RECEIPTS.....		15,869	55,730	17,882	21,868	41,568	81,770	65,798	135,897	53,473	26,238	140,037	175,895	832,026
Disbursement Category.....														
Salaries.....		27,625	27,648	28,836	28,369	27,377	27,626	32,288	30,902	30,484	31,806	32,082	56,523	381,566
Service and Expense.....		11,546	12,119	30,224	21,564	23,757	2,155	31,502	24,551	9,057	10,187	11,609	63,425	251,696
Equipment, Rental.....		4,729							9,457	9,992	2,468	1,766	12,271	28,457
Capital Outlay.....		1,741		696	3,261	614	1,165				5,140	419	28,339	55,601
TOTAL DISBURSEMENTS.....		45,641	40,463	62,321	50,547	52,299	50,781	51,239	57,921	41,307	47,133	44,110	162,558	717,320
URPLS OR DEFICIT.....		-28,772	135,720	-41,439	-28,679	-10,730	+51,989	-17,441	+12,166	-20,895	+176,562	-164,337	+251,594	144,006
LOSING BALANCE.....		120,453		91,281	65,602	51,872	103,861	86,442	164,396	176,562	155,667	155,667	264,931	

7/1/56 Opening Balance: 150.225)

**Exhibit C**  
**FACTOR ANALYSIS SHEET**  
**DOG LICENSES 1956-57**

1954-55 (a)

1955-56

1956-57

% for month (b)	% to date (c)				
2.4	2.4	1.3	1.3	5.3	5.3
1.9	4.3	1.0	2.3	1.1	6.4
1.4	5.7	.8	3.1	.8	7.2
1.3	7.0	.9	4.0	.6	7.8
1.4	8.4	.7	4.7	.5	8.3
7.1	15.5	9.8	14.0	.9	9.2
19.6	35.1	17.3	31.8	31.0	41.1
24.2	59.3	15.1	46.9	24.4	65.5
8.7	68.0	21.1	68.0	12.6	78.1
16.0	84.0	11.1	79.1	9.3	87.4
10.4	94.4	12.3	91.4	7.6	95.0
.6	100.0	8.6	100.0	5.0	100.0

Totl. Rev.  
Rets. for  
Year (e) \$42,769.50

\$47,244.49

\$67,061.00

**Months (d)**

July  
August  
September  
October  
November  
December  
January  
February  
March  
April  
May  
June

**3-Year Moving Average (f)**

July  
August  
September  
October  
November  
December  
January  
February  
March  
April  
May  
June

**Exhibit D**  
**ANNUAL PROJECTION SHEET**  
**REVENUES**

	Total	July	August	June
Dog Licenses—Acc't. No.1-230 Actual.....	(a) 67,061	3,555	738	3,354
Original projection.....	(b) 64,860	3,300	645	3,400
Revised projections.....	(c)			
Plumbing Permits—Acc't. No. 1-232 Actual.....	21,546	1,140	1,950	2,758
Original projection.....	20,720	1,200	1,750	2,700
Revised projections.....				
Total—Gen. Fund Revenues Actual.....	18,239,534	715,044	1,084,623	2,499,072
Original projection.....	16,462,407	687,426	1,210,943	2,178,475
Revised projections.....				

The above illustrations are samples of the manner in which all revenue sources (and expenditure classifications) are estimated at the beginning of a fiscal year, with the resultant figure for total revenues and expenditures for each fund and for the total of all funds. Where revised quarterly projections are in order, they may be inserted on line marked (c) and new totals carried forward.

**Exhibit E**  
**CONTRACTOR'S ESTIMATED PAYMENT SCHEDULE**

Contractor:

Address:

Name of Project:

Estimated Starting Time:

Estimated Completion Date:

P. O. No.

**PAYMENTS**

Month	Est. % to be Completed	Est. to be Earned for Month	10 % Deduction (Est. withhold)	Est. to be Charged for month
January.....				
February.....				
March.....				
April.....				
May.....				
June.....				
July.....				
August.....				
September.....				
October.....				
November.....				
December.....				
Next Year.....				
<b>TOTAL.....</b>				

## Exhibit F

## BANK ACCOUNT ANALYSIS SHEET

MONTH OF		19 BANK			MONTH OF		19 BANK			MONTH OF		19 BANK					
1 LEDGER BALANCE	2 CHECKS DEPOSITED DOLLAR AMOUNT	NO. OF DEPOSITS	5 DOLLAR AMOUNT OF CASH DEPOSITED	6 NUMBER OF CHECKS DEPOSITED	7 MISC. EXPENSES	1 LEDGER BALANCE	2 CHECKS DEPOSITED DOLLAR AMOUNT	NO. OF DEPOSITS	5 DOLLAR AMOUNT OF CASH DEPOSITED	6 NUMBER OF CHECKS DEPOSITED	7 MISC. EXPENSES	1 LEDGER BALANCE	2 CHECKS DEPOSITED DOLLAR AMOUNT	NO. OF DEPOSITS	5 DOLLAR AMOUNT OF CASH DEPOSITED	6 NUMBER OF CHECKS DEPOSITED	7 MISC. EXPENSES
OMIT CENTS		3 CHECKS DEPOSITED OR CASHED	4 PAID AGAINST ACCOUNT			OMIT CENTS		3 CHECKS DEPOSITED OR CASHED	4 PAID AGAINST ACCOUNT			OMIT CENTS		3 CHECKS DEPOSITED OR CASHED	4 PAID AGAINST ACCOUNT		
(1)																	
2																	
3																	
4																	
(5)																	
6																	
7																	
8																	
9																	
(10)																	
11																	
12																	
13																	
14																	
(15)																	
16																	
17																	
18																	
19																	
(20)																	
21																	
22																	
23																	
24																	
(25)																	
26																	
27																	
28																	
29																	
30																	
31																	
Total																	
A. Ledger Balance Average (use dates in parenthesis)	\$																\$
B. Less average dollar amount of checks deposited. (col. 2 $\frac{1}{2}$ days)																	
C. Average Collected Balance																	
Earning value on loanable funds (item C x .00125*)																	
Costs: Interest on uncollected funds @ 6% per annum (Chg. only if item A is O.D. - Total x .005)																	
Deposits @ .05 (total col. 3)																	
Checks dep. or cashed @ .015 (col. 4)																	
Cash deposited @ .15 per \$1,000 (col. 5)																	
Checks paid @ .035 (col. 6)																	
Misc. expenses (col. 7)																	
Non-cash collections																	
Basic cost of service																	
Total Costs																	
Net profit or (loss)																	

\*.00125 per month = 1% per annum.

**Exhibit G**  
**FORMULA FOR TREASURY BILL YIELDS**

The formula utilizes the following data:

- A. The number of days to maturity of Treasury Bills when purchased.
- B. The number of days held.
- C. Difference between the yield at which bills are purchased and that at which they are sold.
- D. Alteration in original cost (yield) resulting from difference between purchase price and sale price over period held.

The formula is as follows:

$$D = \frac{A - B}{B} \times C$$

An illustration of the use of the formula is as follows:

**PROBLEM:** 91 day bills are bought at 3.07%, held 33 days, and sold at 3.15% a basis.

What is the return for the period held?

In this problem: A = 91  
B = 33  
C = 3.15 - 3.07 = .08%

$$\begin{aligned}\text{Using formula: } D &= \frac{91 - 33}{33} \times .08 \\ &= \frac{58}{33} \times .08 = 1.76 \times .08 \\ D &= .14\%\end{aligned}$$

This indicates that the original yield of 3.07% was altered by .14%. Since the bills were sold at a yield basis higher than the cost, representing a loss, the original yield was reduced and the figure of .14% represents a subtraction.

$$\begin{aligned}\text{Then: Return for period} &= 3.07\% - D \\ &= 3.07\% - .14\% \\ &= \underline{\underline{2.93\%}}\end{aligned}$$

The formula may be rearranged for use in determining

- (1) Number of days the bills must be held, or
- (2) The difference between the cost price and sale price required.

These variations of the formulas are as follows:

$$(1) \quad B = \frac{A \times C}{D + C}$$

$$(2) \quad C = \frac{D \times B}{A - B}$$

This use of the formula may be illustrated as follows, substituting the values in the preceding example:

- (1) REQUIRED: The number of days it is necessary to hold the bills to secure a yield of 2.93% (3.07% - .14% from the preceding example):

$$\begin{aligned}B &= \frac{A \times C}{D + C} \\&= \frac{91 \times .08}{.14 + .08} = \frac{7.28}{.22} \\B &= \underline{\underline{33 \text{ days}}}\end{aligned}$$

- (2) REQUIRED: The difference between purchase price and sale price necessary to show a return of 2.93%

$$\begin{aligned}C &= \frac{D \times B}{A - B} \\&= \frac{.14 \times 33}{91 - 33} = \frac{4.62}{58}\end{aligned}$$

$$C = \underline{\underline{.08\%}}$$

Therefore the bills must be sold at 3.07% + .08% = 3.15%

If it is required to determine the number of days bills must be held to avoid loss, the rearranged formula (1) is used and D is given a value equal to the cost yield - (when the original yield is altered by an identical amount the resulting return is = 0).